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Notes on the Corixidae and Notonectidae (Hemiptera: Heteroptera) of southern Western Australia

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Abstract – The nektonic water-bugs (Corixidae and Notonectidae) collected during recent surveys in southern Western Australia are listed. *Anisops baylii* sp. nov. is described from a number of widely distributed localities. The variation between the forms of some *Anisops* species recorded is commented on and brief notes on the extra-limital distribution of the water-bugs within Australia are given.

INTRODUCTION

The fauna of temporary pools on granite outcrops in the Northcliffe region and other widely distributed localities were sampled in 1977 (Bayly 1982). Further collections were made by Bayly during the winter of 1990 and those were in part made from habitats not on granite rock strata (Bayly 1992a). For data on rainfall pattern and physico-chemical parameters of pools on granite see Bayly (1982). Some general features of temporary pools on granite inselbergs in southern Western Australia are discussed by Bayly (1992b). Other samples collected from habitats on the Swan Coastal Plain are included as the new species *Anisops baylii* was found by F. Cheal to occur in this region as well as in several other widely distributed localities in the Bayly samples.

The water-bug fauna of southern western Australia has some similarities with those found in south eastern Australia. The number of species in the genera recorded from both regions as compared with the total number of described Australian species are shown in Table 1.

Three endemic species were identified: *Paranisops endymion* (Kirkaldy), *Notonecta handlirschi* Kirkaldy (a specimen of this species studied from the Swan Coastal Plain leg F. Cheal) and *Sigara mullaka* Lansbury.

The data extracted from Bayly's samples tends to suggest that the water-bug fauna of southern Western Australia is depauperate compared with that of south eastern Australia. This may reflect the type of habitats sampled by Bayly and a broader range of sampling would increase the overall species diversity. Bayly sampled 49 habitats in 1977, some were sampled several times, water-bugs were found in 18. In 1990, 86 habitats sampled (two previously sampled in 1977) and water-bugs were found in 27 samples.

The species diversity of the two series of Bayly's samples do not differ significantly allowing for the greater number of habitats sampled in 1990. A small number of *Anisops* females could not be identified and are excluded from the study.

Especially noticeable is the lack of *Sigara* species other than *S. mullaka*. Samples from Victoria and South Australia collected by the author frequently included two species, *S. truncatipala* (Hale) and *S. sublaevifrons* (Hale), occasionally three species with *S. australis* (Fieber).

There is some evidence that at least two *Anisops* species e.g., *A. thienemanni* Lundblad recorded from many habitats and *A. elstoni* Brooks recorded from several localities in southwestern Australia differ in some features (size and secondary sexual characters) from forms recorded from other regions in Australia.

The species listed or mentioned other than *N. handliirschi* are the most commonly encountered in southern Western Australia. The list only represents the species in the Bayly samples and small series from the Swan Coastal Plain, F. Cheal.

MATERIAL AND METHODS

The type series of *Anisops baylii* from the Swan Coastal Plain will be deposited in the Western Australian Museum, Perth (WAM). Some of the Bayly material will be placed in the Museum of Victoria, Melbourne (NMV) with voucher specimens retained in Oxford (OUM). All the material is alcohol-preserved. Figures were drawn from either slide mounted preparations or from temporarily dried material which was then returned to alcohol.

SYSTEMATICS

Family Corixidae Leach

Subfamily Diaprepocorinae Lundblad

Diaprepocoris personata Hale

Diaprepocoris personata Hale, 1924: 7–10; Knowles, 1974: 187–189.

Material Examined

Australia: Western Australia: 1 ♂, roadside pool 6.7 km S. of Northcliffe [locality 4 of Bayly (1992a)], 18 June 1977; 1 ♀, 1 July 1977. 1 ♂, 1 ♀, pool on Muirillup Rock [locality 4 of Bayly (1982)] 34°39'S, 116°15'E, 2 July 1990.

Remarks

Described by Hale (1924) from Western Australia (Swan River). Knowles (1974) localities are all in Western Australia. I have seen material from Tasmania, South Australia (Mt Gambier region) and Queensland (Brisbane).

Subfamily Corixinae Leach

Sigara mullaka Lansbury

Sigara mullaka Lansbury, 1970: 42–44

Material Examined

Australia: Western Australia: 1 ♂, 3 ♀, granite rock pools on Sullivan Rock, 11 km S. of Gleneagle [locality 10 of Bayly (1982)], 8 June 1977. 1 ♀, granite rock pool, Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990. 1 ♂, 1 ♀, pool on Sanford Rocks, 31°14'S, 118°46'E, 15 August 1990.

Remarks

Previously recorded from Western Australia (Mt Yokine, Bickley Swamp, Darling Ranges and Newcastle).

Table 1 Numbers of species of Notonectidae and Corixidae in Australia.

	Southeastern Australia	Southwestern Australia	Australian total
Notonectidae			
Anisops	10	6	27
Paranisops	1	1*	2
Enithares	2	0	4
Notonecta	0	1*	1
Corixidae			
Diaprepocoris	3	2	3
Sigara	6	1*	7
Agraptocorixa	3	3	6
*Micronecta***	?	3	14?

* endemic to S.W. Australia

** taxonomy of *Micronecta* confused, in need of revision.

Agraptocorixa parvipunctata (Hale)

Agraptocorixa parvipunctata (Hale), 1922: 320–321; Lundblad, 1928: 13–18; Knowles, 1974: 177–179.

Material Examined

Australia: Western Australia: 1 ♂, roadside pool 7.1 km S. of Northcliffe [locality 5 of Bayly (1992a)], 2 July 1977; 2 ♂, 2 ♀, Newmann's Rocks, 88 miles E. of Norseman [locality 18 of Bayly (1982)], 5 July 1977; 1 ♂, granite rock pool, summit Mt Madden, N. of Ravensthorpe, 33°14'S, 119°50'E, 26 June 1990; 1 ♀, rock pool about 2 m below main summit pool, Mt Madden, 33°14'S, 119°50'E, 26 June 1990; 1 ♀, roadside pool 15 km W. of Denmark, 34°59'S, 117°10'E, 29 June 1990; 1 ♂, 1 ♀, Rock pool, War Rock, Pitharuka Dam Road, *ca.* 15 km N Morawa, 29°05'S, 116°00'E, 13 July 1990. 16 ♂, 22 ♀, granite rock pool, Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990; 18 ♂, 41 ♀, granite rock pool, Petrudor Rock, 30°25'S, 116°58'E, 14 August 1990.

Remarks

Described from South Australia (Adelaide). Widespread over much of Australia. Found as far north as Julatten north of Cairns, Queensland.

Agraptocorixa eurynome (Kirkaldy)

Agraptocorixa eurynome (Kirkaldy), 1897: 54–55; Hale, 1922: 318–319; Lundblad, 1928: 3–9; Knowles, 1974: 175–177; Jansson, 1982:88.

Material Examined

Australia: Western Australia: 7 ♂, roadside pool 3.1 km S. of Warren River near Manjiump, 28 May 1977; 4 ♂, 1 ♀, roadside pond 2.3 km S. of Northcliffe [locality 2 of Bayly (1992a)], 3 June 1977; 1 ♂, 1 ♀, roadside pond 10.8 km S. of Northcliffe [locality 6 of Bayly (1992a)], 3 June 1977. 3 ♂, 1 ♀, small permanent lake behind Hamelin Bay, NW. of Augusta, 34°13'S, 115°02'E, 5 July 1990.

Remarks

Males varying between 7.6–8.13 mm long, females 8.3 mm long, smaller than usual, Knowles (1974) gives length as 8.5–10 mm long.

Kirkaldy (1897) described *eurynome* from the 'Adelaide River' South Australia. Hale (1922) and Knowles (1974) place the type locality in the Northern territory. The most northerly Australian records published are the Hann River and Townsville, Queensland, (Knowles litt. comm.). Extensive collections from the Northern Territory have shown that *eurynome* does not occur much further north than Alice Springs. The commonest species in the 'far north' is *Agraptocorixa halei* Hungerford (Northern Territory Museum collections).

Jansson (1982) however, has recorded *eurynome* from Irian Jaya: New Guinea (NW) Wisselmeren, Itouda, Kamo, 1500 m. which supports the possibility that *eurynome* occurs in the far north of Australia.

Subfamily Micronectinae Jaczewski

Remarks

The taxonomy of the Australian *Micronecta* is in need of revision. Some of the Bayly samples included two or possibly three species. Males were selected of each species, measured and dissected, they were found to differ in minor details from those figures by Wroblewski (1970). Females in the samples seemed to lack obvious distinguishing features other than size. No attempt was made to give numbers of both sexes in samples owing to the possibility of taxonomic error.

Micronecta robusta Hale
Figures 1–4

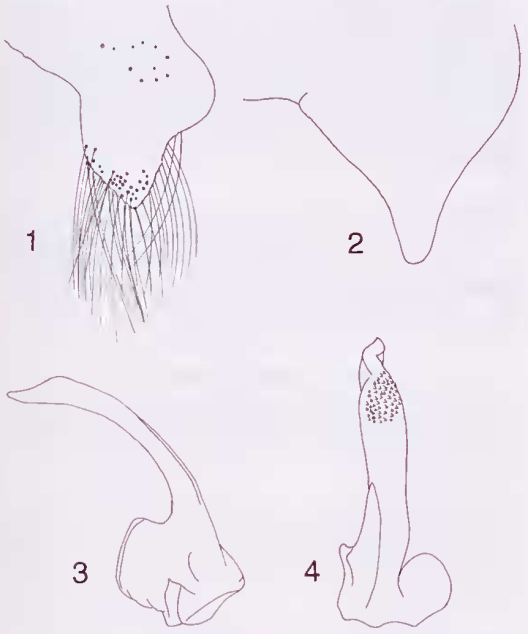
Micronecta robusta Hale, 1922: 325; Chen, 1965: 153–155; Wroblewski, 1970: 689–691; 1977: 687–688.

Material Examined

Australia: Western Australia: rock pools near summit Mt Madden, 33°14'S, 119°50'E, 26 June 1990; granite rock pool, Bunjil Rocks, 24 km S Perenjori, 29°39'S, 116°21'E, 13 July 1990 (males 3.68 mm long, 1.8 mm wide); pool, SW. corner of Elachbutting Rock, 30°36'S, 118°37'E, 15 August 1990 (males 3.68–3.76 mm long, 1.84 wide); pool on Sanford Rocks, 31°14'S, 118°46'E, 15 August 1990 (males 3.72 mm long, females 4 mm long); pool near summit of Wave Rock, E. of Hyden, 32°27'S, 118°54'E, 28 August 1990 (female 4.24 mm long, 1.92 mm wide).

Remarks

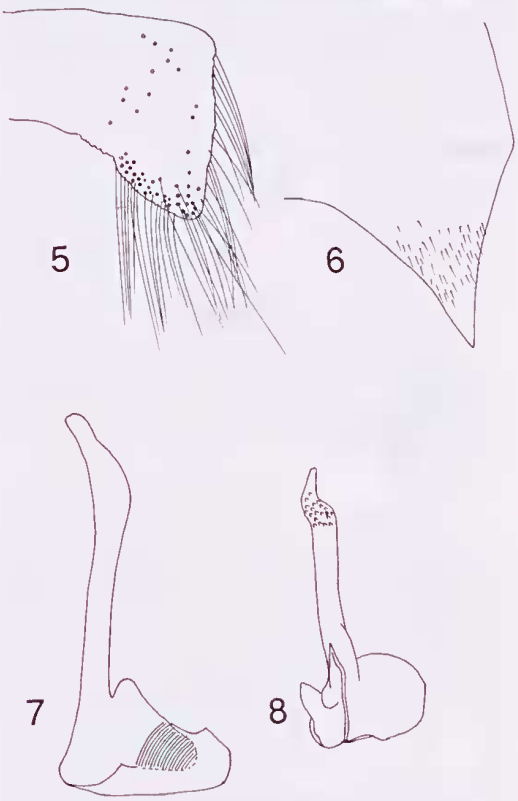
Figures 1–4 show details of the male genitalia. Type locality South Australia: Adelaide. Widely distributed in southeastern Australia, Tasmania and Western Australia, see Wroblewski (1970, 1977).



Figures 1–4 *Micronecta robusta* Hale, ♂, Bunjil Rocks: 1, free lobe of 8th tergite; 2, process of 7th sternite; 3, right paramere; 4, left paramere. Scale line 0.5 mm.

Micronecta gracilis Hale
Figures 5–8

Micronecta gracilis Hale, 1922: 326; Chen, 1965: 151–155; Wroblewski, 1970: 692–694; 1977: 688.



Figures 5–8 *Micronecta gracilis* Hale, ♂, Bunjil Rocks: 5, free lobe of 8th tergite; 6, process of 7th sternite; 7, right paramere; 8, left paramere. Scale line 0.5 mm.

Material Examined

Australia: Western Australia: long series of both sexes, granite rock pool, Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990 (3.4 mm long, 1.4 mm wide); series of both sexes, pool on Petrudor Rocks, 30°25'S, 116°58'E, 14 August 1990 (3.32–3,56 mm long, 1.44–1.52 mm wide).

Remarks

Figures 5–8 show details of the male genitalia. Type locality South Australia: Quorn. Widely distributed in Victoria, New South Wales and southern Queensland.

Micronecta annae Kirkaldy
Figures 9–12

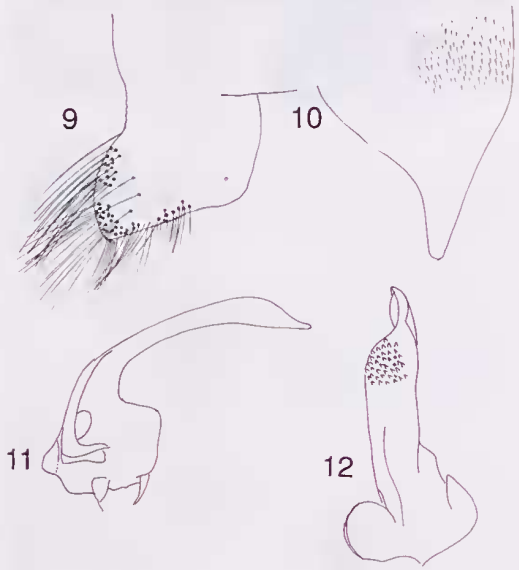
Micronecta annae Kirkaldy, 1905: 262–263; Chen, 1965:162; Wroblewski, 1970: 682–687; 1977: 684.

Material Examined

Australia: Western Australia: rock hole, War Rock, Pitharuka Dam Road *ca.* 15 km N. of Morawa, 29°05'S, 116°00'E, 13 July 1990 (females 3.56–3.68 mm long, 2.2–2.3 mm wide); deep pool on Beringbooding Rock, 30°34'S, 118°30'E, 15 August 1990 (females 3.4–3.52 mm long, 1.52–1.64 mm wide).

Remarks

Figures 9–12 show details of the male genitalia.



Figures 9–12 *Micronecta annae* Kirkaldy, ♂, Beringbooding Rock: 9, free lobe of 8th tergite; 10, process of 7th sternite; 11, right paramere; 12, left paramere. Scale line 0.5 mm.

Type locality Victoria, no precise locality. Widely distributed in Australia (Wroblewski 1970, 1977).

Family Notonectidae Latreille

Subfamily Anisopinae Hutchinson

Paranisops endymion (Kirkaldy)

Anisops endymion Kirkaldy, 1904: 112; Brooks, 1951: 463–464 (references 1904–1933).

Paranisops endymion (Kirkaldy): Lansbury, 1964b: 181–188.

Material Examined

Australia: Western Australia: 2 ♂, 3 ♀, swamp 800 m from Le Grand Beach camping ground, Cape le Grand National Park, 33°58'S, 122°07'E, 25 June 1990.

Remarks

Also recorded from Lake Gnangara, Swan Coastal Plain (Lansbury 1964b).

Type locality, Western Australia: Swan River.

Anisops stali Kirkaldy

Anisops stali Kirkaldy, 1904: 113, 132; Brooks, 1951: 319–322 (references 1904–1934); Sweeney, 1965: 90; Lansbury, 1969: 434–437.

Material Examined

Australia: Western Australia: 1 ♂, pit-gnamma beside War Rock, Pitharuka Dam road, N. of Morawa, 29°05'S, 116°00'E, 13 July 1990; 6 ♂, 6 ♀, pool on Petrudor rocks, 30°25'S, 116°58'E, 14 August 1990.

Remarks

Described from 'Australia'. Species widespread over most of Australia other than Tasmania. Recorded from much of Indonesia, New Hebrides, Philippines northwards to Okinawa.

Anisops deanei Brooks

Anisops deanei Brooks, 1951: 381–382; Sweeney, 1965: 90; Lansbury, 1964a: 62–64; 1969: 434, 455, 457.

Material Examined

Australia: Western Australia: 1 ♂, roadside pool at Windy Harbour, 27 km S. of Northcliffe, 1 July 1990.

Remarks

Type series from New South Wales: Bogan River, Victoria: Alexandria and Queensland: St George District. Widespread over much of 'southern' Australia northwards to Alice Springs.

Anisops gratus Hale

Anisops gratus Hale, 1923: 413–414; Brooks, 1951: 352–353; Sweeney, 1965: 91; Lansbury, 1969: 448–449.

Material Examined

Australia: Western Australia: 2 ♀ and immatures, Lake Cronin, 85 km E. of Hyden, 32°23'S, 119°45'E, 28 August 1990; 1 ♀, pool on Petrudor Rocks, 30°25'S, 116°58'E, 14 August 1990.

Remarks

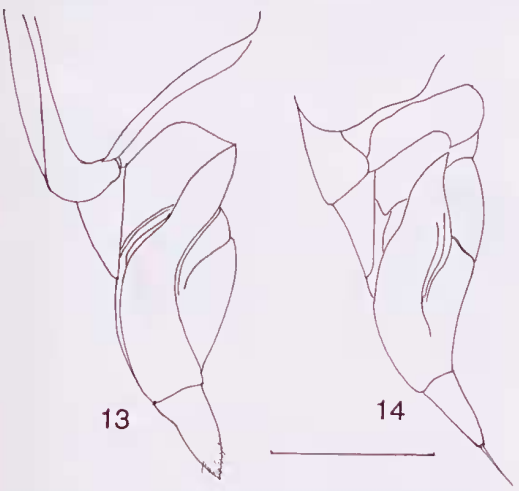
Type series from New South Wales: Broken Hill; Hale (1923) also included localities in South Australia, Northern Territory, Queensland and Western Australia. The most northerly record so far known is from the Elkedra River *ca.* 340 km NE. of Alice Springs.

Anisops thienemanni Lundblad
Figures 13–14

Anisops thienemanni Lundblad, 1933: 167–168; Brooks, 1951: 413–416; Sweeney, 1965: 88–89; Lansbury, 1969: 446–448.

Material Examined

Australia: Western Australia: 6 ♂, 11 ♀, roadside pool, Pfeiffer's Road, 8 km from Many Peaks, 4 July 1977; 1 ♂, 1 ♀, roadside pool, 3 km S. of Warren River, near Manjimup, 28 May 1977; 2 ♂, 2 ♀, roadside pool, 2.3 km S. of Northcliffe [locality 1 of Bayly (1992a)], 1 July 1977; 4 ♀, roadside pool 6 km S Northcliffe [locality 3 of Bayly (1992a)], 18 June 1977; 4 ♀, roadside pool, 6.7 km S. of Northcliffe [locality 4 of Bayly (1992a)], 18 June 1977; 3 ♀, roadside pool, 7.1 km S. of Northcliffe [locality 5 of Bayly (1992a)], 17 June 1977; 1 ♀, 2 July 1977; 1 ♂, 2 ♀, granite rockpool on Muirillup Rock near Northcliffe [locality 4 of Bayly (1982)], 18 June 1977; 2 ♂, 3 ♀, granite rock pools on Sullivan Rock, 11 km S. of Gleneagle [locality 10 of Bayly (1982)], 8 June 1977; 1 ♀, large shallow paddock pond, South Harvey Estuary, 5.5 km along Warooma Road from coast road, 1 July 1977; 1 ♀, small shallow lake near eastern side of Lake Powell, 3 July 1977; 1 ♀, ponds near Frenchman's Bay Road, Albany, 3 July 1977; 3 ♀ [6.8–7.47 mm long], three inter-connecting pools on summit of Mt Madden, N. of Ravensthorpe, 33°14'S, 119°50'E, 26 June 1990; 1 ♂ [7.55 mm long], rock pool about 2 m below summit pool, Mt Madden, 33°14'S, 119°50'E, 26 June 1990; 1 ♀ [8.46 mm long, doubtfully *thienemanni*], roadside pool 15 km W. of Denmark, 34°59'S, 117°10'E, 29 June 1990; immatures, roadside pool near Northcliffe [locality 2 of Bayly (1992a)], 1 July 1990 [possibly *thienemanni*]; 1 ♀, [7.13 mm long], roadside pool near Northcliffe [locality 3 of Bayly (1992a)]; 2 ♀ [7.47 mm long], roadside pool near Northcliffe [locality 4 of Bayly (1992a)]; 3 ♂ [6.7–7.8 mm long] 5 ♀, immatures [6.8–7.7 mm long], rock-pool on War Rock, Pitharuka Dam Road, *ca.* 15 km N. of Morawa, 29°05'S, 116°00'E, 13 July 1990 (Fig. 13); 1 ♂, [7.63 mm long], pit-gnamma beside War Rock, Pitharuka Dam Road, N. of Morawa 29°05'S, 116°00'E, 13 July 1990; 5 ♂, 12 ♀ [7.47 mm long], section of granite rock artificially dammed at Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990; 1 ♀, pool on Petrudor Rocks, *ca.* 20 m lower than summit, 30°25'S, 116°58'E, 14 August 1990; 3 ♂, 3 ♀, pool on Petrudor Rocks, 30°25'S, 116°58'E, 14 August 1990; 5 ♂ [7.1–7.47 mm long], 6 ♀ [7.0–7.38 mm long], deep pool on Beringbooding Rock, 30°34'S, 118°30'E, 15 August 1990; 2 ♀ [7.3 mm long], pool on SW. corner of Elachbutting Rock, 30°36'S, 118°37'E, 15 August 1990.



Figures 13–14 *Anisops thienemanni* Lundblad, ♂: 13, rostral prong, War Rock; 14, rostral prong, N.T. Elkedra. Scale line 0.5 mm.

Remarks

Type series, Java, Mitteljava, Diengplateau, See Telaga Warnaetwa 2000 masl; Diengplateau, Chara-Tümpel gegenüber der Kawa Sikidang. Found over most of 'southern' Australia, distribution similar to *A. gratus*. Some of the samples from southern Western Australia are consistently larger than material from other regions of Australia. Brooks (1951) states males 6–7.2 mm long, females 6–6.9 mm long; Lansbury (1969) males 6.9–7.2 mm long, females 6.75–7.5 mm long; southwestern Australia series, males 6.7–7.8 mm long, females 6.8–7.7 mm long. Javanese type 7.5 mm long.

In Australia, *A. thienemanni* has not been found much further north than the Elkedra River, *ca.* 340 km NE of Alice Springs. The rostral prong of male

from South Western Australia (Fig. 13) differs from the Northern Territory form (Fig. 14) and both are distinct from the form figured from S.E. Australia by Lansbury (1969: 447, fig. 46).

It is possible that *thienemanni* may be a group of sibling species. The distribution gap between its widespread occurrence over 'southern' Australia including Tasmania and the apparently sparse records from Java does need further investigation.

Anisops baylii sp. nov.
Figures 15–17

Material Examined

Holotype

♂, Lake Mt Brown, Swan Coastal Plain, Perth, Western Australia, Australia, 10 December 1993, F. Cheal (WAM 95/498).

Paratypes

Australia: Western Australia: 1 ♂, 9 ♀, same collection data as holotype; 7 ♂, same data as holotype, November–December 1992; 1 ♂, Lake Nowergup, Swan Coastal Plain, Perth, 10 February 1989, F. Cheal; 3 ♂, 1 ♀, Brownman Swamp, Swan Coastal Plain, Perth, 3 November 1989, F. Cheal (WAM); 6 ♂, Lake Mt Brown, Summer 1992, F. Cheal (OUM); 1 ♂, 1 ♀, natural rock pools, near summit of Mt Madden, 33°14'S, 119°50'E, 26 June 1990, I.A.E. Bayly (NMV).

Other Material

Australia: Western Australia: 5 ♀, rock-pool on War Rock, Pitharuka Dam Road, *ca.* 15 km N. of Morawa, 29°05'S, 116°00'E, 13 July 1990, I.A.E. Bayly; 9 ♀, section of granite rock artificially dammed, Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990, I.A.E. Bayly (OUM and NMV).

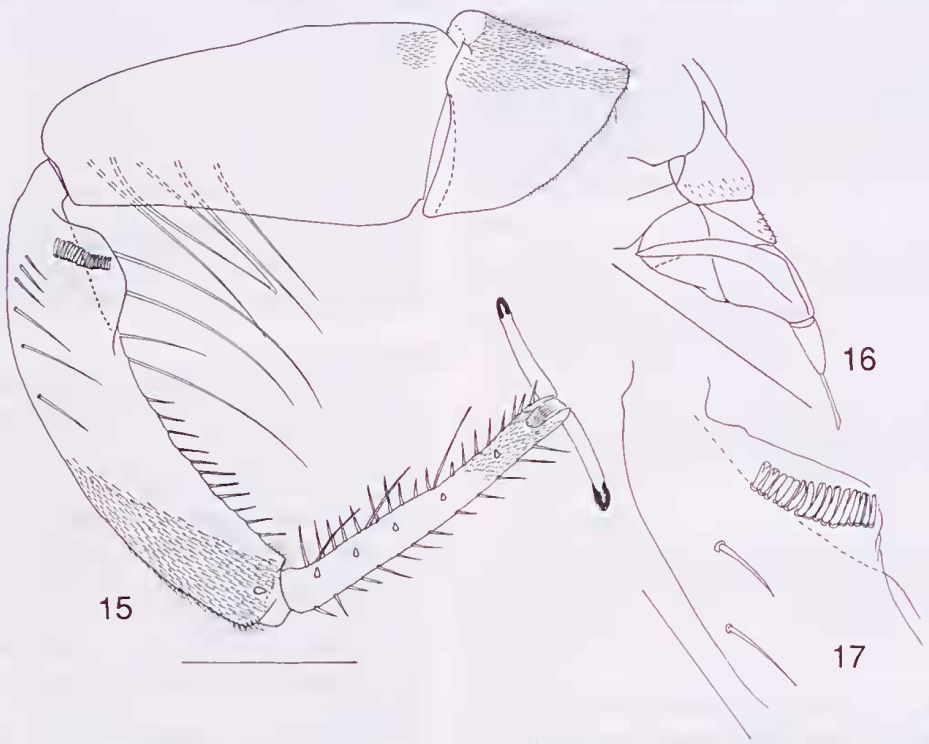
Description

Male

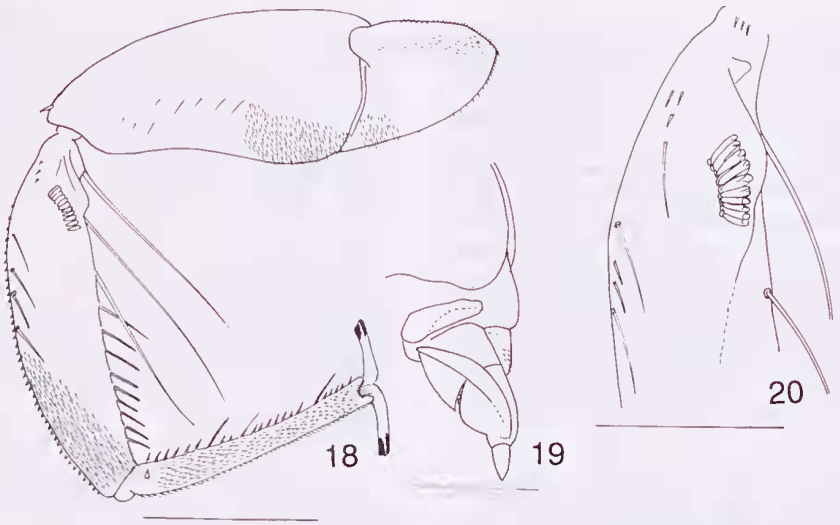
7.2–7.8 mm long; head width 1.8–1.98 mm; pronotal width 1.76–1.96 mm.

Colour: eyes black shining. Dorsal coloration varying between uniformly pale greyish yellow or with anterior lateral margins of vertex yellowish brown, remainder hyaline. Scutellum shining brown-black, apex hyaline. Hemelytra hyaline, black dorsal pigmentation showing through, laterally narrowly iridescent. Ventrally black, legs pale yellow, middle femora infuscated dark brown-black.

Structure: viewed dorsally head large, eyes large



Figures 15–17 *Anisops baylii* sp. nov., paratype ♂, Mt Madden: 15, front leg (scale line 0.5 mm); 16, rostral prong (scale line 1 mm); 17, stridulatory comb (scale line 0.25 mm).



Figures 18–20 *Anisops elstoni* Brooks, ♂, Cape Le Grand National Park: 18, front leg (scale line 0.5 mm); 19, rostral prong (scale line 0.5 mm); 20, stridulatory comb (scale line 0.25 mm).

extending slightly in front of the anterior width of vertex. Greatest head width either as wide or wider than greatest width of pronotum. Maximum head width between 7.5–9.8x anterior width of vertex and 3x median head length. Synthlipsis wide varying between 0.6–0.9x anterior width of vertex. Median head length 0.6–0.7x median pronotal length. Pronotal width 2x median length, lateral margins almost straight and slightly divergent. Posterior margin medianly slightly emarginate. Facial tubercle slightly raised with short sparse greyish hairs. Rostral prong long and thin (Figure 16). Basal width of labrum subequal to median length with longer hairs. Stridulatory comb (Figure 17) 15 pegs, inner pegs appearing distally acuminate. Chaetotaxy of front leg (Figure 15).

Female

7.0–7.8 mm long; head width 1.68–1.84 mm; pronotal width 1.82–1.92 mm.

Colour: similar to male.

Structure: viewed dorsally lateral eye margins convergent. Greatest head width between 0.89–0.93x pronotal humeral width and between 2.8–3.2x anterior width of vertex. Head width between 5.3–8.3x anterior width of vertex. Synthlipsis between 0.62–0.92x anterior width of vertex. Median pronotal length 1.3–1.7x median head length, pronotal humeral width 1.89–2.25x median length. Lateral pronotal margins straight, diverging, posterior margin medianly emarginate. Facial tubercle slightly raised, frons above facial tubercle with fine pale hairs. Labrum with a cluster of short fine hairs. Basal width of labrum subequal to median length.

Remarks

In Brooks (1951) this species keys out to *leucothea* Esaki and in Lansbury (1969) it keys out to *occipitalis* Breddin. The stridulatory comb of *occipitalis* has about 24–26 pegs and the dorsal margin of the front femur is sinuate distally whereas that of *baylii* is more or less straight. The rostral prong of both *leucothea* and *occipitalis* are wider basally than *baylii* which has a very narrow elongate rostral prong.

Anisops elstoni Brooks
Figures 18–20

Anisops elstoni Brooks, 1951: 326–327; Lansbury, 1964a: 58–59; Sweeney, 1965: 91; Lansbury, 1978: 105–107.

Material Examined

Australia: Western Australia: 2 ♂, roadside pool, Pfeiffer's Road, 8 km from Many Peaks, 4 July 1977; 2 ♂, roadside pool, 6 km S. of Northcliffe [locality 3 of Bayly (1992a)], 1977; 1 ♂, 1 ♀, swamp 800 m from Le Grand Beach camping ground, Cape Le Grand National Park, 33°58'S, 122°07'E, 25 June 1990.

Description

Males and females 5.8 mm long.

Colour: eyes dark brown. Pronotum and scutellum pale brownish yellow. Hemelytra hyaline, dorsal pigmentation showing through. Ventrally black including frons, facial tubercle and labrum. legs shining dark brown-black.

Male

Viewed dorsally eyes large, lateral margins slightly convex. Greatest head width fractionally narrower than pronotal humeral width, 6.8x anterior width of vertex and almost 3x median head length. Synthlipsis 0.4x anterior width of vertex. Median head length 0.8x median pronotal length. Pronotal width 2.12x median length, lateral margins diverging, posterior margin laterally deeply concave, medianly deeply emarginate. Facial tubercle slightly raised. Median labral length equal to basal width, distally broadly rounded with sparse fine hairs. Chaetotaxy of front leg (Figure 18) tarsus with a prominent proximal spine. Stridulatory comb small with *ca.* 13 even-sized pegs (Figure 20). Rostral prong (Figure 19).

Females

Greatest head width narrower than pronotum and 5.75x anterior width of vertex and 3x median head length. Synthlipsis 0.4x anterior width of vertex. Median head length 0.67x median pronotal length. pronotal width 2.2x median length, lateral margins strongly divergent, posterior margin similar to male.

Remarks

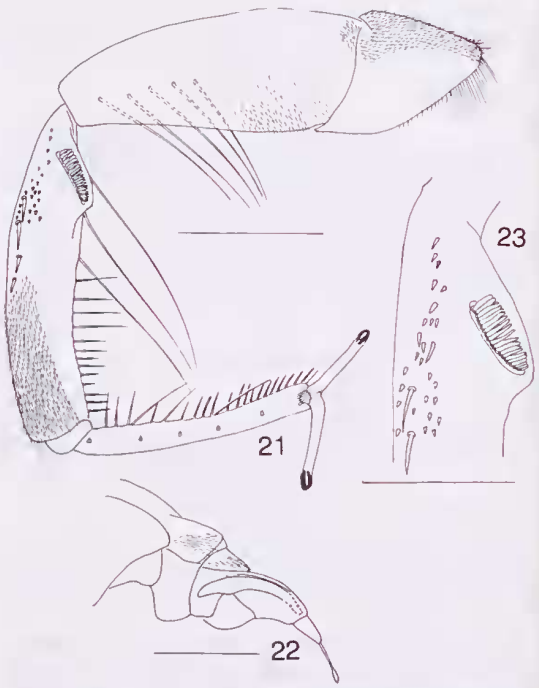
Brooks (1951) described *elstoni* from various localities in Australia and China, Suifu, Szechwan. *Anisops depressa* Lansbury from Irian Jaya appears to be a synonym of *elstoni* (Lansbury 1978). The form from southwestern Australia differs from the 'typical form' by its larger size, 5.8: 4.5–5.0 mm, absence of the depressions on the male pronotum and the slightly larger more robust rostral prong.

Anisops hyperion Kirkaldy
Figures 21–23

Anisops hyperion Kirkaldy, 1898: 141; Brooks, 1951: 332–334 (references 1898–1951); Sweeney, 1965: 89–90; Lansbury, 1964a: 61–62; Lansbury, 1969: 434, 456–457.

Material Examined

Australia: Western Australia: 7 ♂, 4 ♀, roadside pool, 3 km S. of Warren River, Manjimup, 28 May 1977; 9 ♂, 1 ♀, roadside pool, 2.3 km S. of Northcliffe [locality 2 of Bayly (1992a)], 3 June 1977; 1 ♂, 1 ♀, roadside pool, 6 km S. of Northcliffe [locality 3 of Bayly (1992a), 18 June 1977; 1 ♂, 1 June 1977; 2 ♂, 1 ♀, roadside pool, 7.1 km S. of Northcliffe [locality 5 of Bayly (1992a)], 2 July 1977; 1 ♂, granite rock pool at top of Mt Madden, 4 July 1977; 1 ♂, artificial pond at base of Ponier Rock, 32°56'E 123°30'E, 24 June 1990; 1 ♂, roadside pond, Cape le Grand National Park, 33°56'S, 122°11'E, 25 June 1990; 3 ♀, large pool, summit of Mt Madden, N. of Ravensthorpe, 33°14'S, 119°50'E, 26 June 1990; 1 ♂, 1 ♀, rock-pool, *ca.* 20 m below summit pool, Mt Madden, 33°14'S, 119°50'E, 26 June 1990; 1 ♂, roadside pool, 15 km W. of Denmark, 34°59'S, 117°10'E, 29 June 1990; 1 ♂, roadside pool near Northcliffe [locality 4 of Bayly (1992a)], 1 July 1990; 3 ♂, pit-gnamma beside War Rock, Pitharuka Dam Road, N. of Morawa, 29°05'S, 116°00'E, 13 July 1990; 3 ♂, 1 ♀, section of granite rock artificially dammed, Bunjil Rocks, 24 km S. of Perenjori, 29°39'S, 116°21'E, 13 July 1990; 8 ♂, 8 ♀, pool on Petrudor Rocks 20 m below summit, 30°25'S, 116°56'E, 14 August 1990; 1 ♂, 1 ♀, deep pool on Beringbooding Rock, 30°34'S, 118°30'E, 15 August 1990.



Figures 21–23 *Anisops hyperion* Kirkaldy, ♂, Mt Madden: 21, front leg; 22, rostral prong (scale lines 0.5 mm); 23, stridulatory comb (scale line 0.25 mm).

Description

Male

Composite description based on males from four South Western Australian localities, form variable.

6.14–6.8 mm long.

Greatest head width between 0.89–0.91x pronotal humeral width, 7–7.8x anterior width of vertex and 2.1–2.57x median head length. Synthlipsis 0.38–0.42x anterior width of vertex. Median head length 0.87–subequal to median prontotal length. Pronotal

humeral width 2.2–2.3x median length. Lateral margins straight, diverging, posterior margin medianly emarginate. Facial tubercle very slightly raised. Labrum, basal width subequal–1.3x median length. Both facial tubercle and labrum with scattered short semi-erect hairs. Chaetotaxy of front leg (Figure 21). Rostral prong (Figure 22). Stridulatory comb (Figure 23) with 19 pegs.

Remarks

In Brooks (1951) the form from South Western Australia keys out to *deanei* Brooks. *A. hyperion* is easily distinguished by the apex of the 3rd rostral segment not being wider than the base of the 4th as it is in *deanei*.

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